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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
05/127,644	07/31/98	SCHUB	1025E-537

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EXAMINER
TAMALIK

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/28/99 *4*

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary

Application No.
09/127,644

Applicant(s)
Schob

Examiner
Karl Tamai

Group Art Unit
2834



☒ Responsive to communication(s) filed on Jul 31, 1998

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-10, 14, 15, and 17-21 is/are rejected.

☒ Claim(s) 11-13 and 16 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on Jul 31, 1998 is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 1

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.84(h)(5) because Figure 1, 2, 3, 4, and 7 shows modified forms of construction in the same view. Correction is required.
2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show axially magnetized permanent magnets in the stator and in the rotor with two control windings in the stator as described in the specification on page 8 regarding Figure 7(10th embodiment disclosed with only 9 embodiments shown in the drawings). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because of the use of legal phraseology, such as "means" and "comprises". Correction is required. See MPEP § 608.01(b).

6. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

-
- (a) Title of the Invention.
 - (b) Cross-References to Related Applications.
 - © Statement Regarding Federally Sponsored Research or Development.
 - (d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
 - (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
 - (f) Brief Summary of the Invention.
 - (g) Brief Description of the Several Views of the Drawings.
 - (h) Detailed Description of the Invention.
 - (I) Claim or Claims (commencing on a separate sheet).
 - (j) Abstract of the Disclosure (commencing on a separate sheet).
 - (k) Drawings.
 - (l) Sequence Listing (see 37 CFR 1.821-1.825).

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7. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification, such as spelling errors "recognises" on page 7, line 32, and "magnetised" throughout the specification. United States Patent office policy regarding the content of the specification does not include the inventors name, address, and citizenship on page 1 of the specification. The inventors names, addresses, and citizenship should be deleted from the first two lines of page 1.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 is vague and indefinite because it is unclear whether a "disc rotor stator" is a rotor or a stator.

Claim Rejections - 35 USC § 102

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10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 8, 9, and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nichols et al.(Nichols). Nichols teaches a magnetically levitated ring shaped rotor which the stator having axially aligned levitating magnets and circumferentially disposed field windings 40 to rotate the rotor. Nichols teaches unipolar rotor flux in the ferromagnetic, reluctance poles of the rotor which close the magnetic circuit with the stator bearing magnets 38. Nichols teaches control windings 42 on the stator to control the unipolar magnetic bearing flux.

12. Claims 1, 8, 20, and 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Schoeb et al.(Schoeb). Schoeb teaches a magnetic bearing for a disk rotor 14 with magnet 28 positioned in a ring stator rotating field 4 with permanent magnet 55 for pumping/agitating blood.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. Claims 2, 4, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols in further view of Lyman. Nichols teaches every aspect of the invention, except permanent magnets on the rotor creating unipolar magnetic bearing flux and an additional stator(or two) in a plane parallel with bearing plane. Lyman teaches an axially oriented permanent magnet 31 on the rotor to provide magnetic bearing flux across the air gap with the stator. Lyman teaches the rotor can be either disk shaped inside the ring shaped stator or the rotor can be ring shaped outside the stator. Lyman teaches a plurality of stators in parallel to provide magnetic bearing support to the rotor. Nichols teaches the permanent magnet producing the bearing flux being four circumferentially spaced magnets 38a rather than a single permanent magnet. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Nichols with the permanent magnet on the rotor as in Lyman to efficiently support a rotor with a large moment of inertia, and with a first and second stator in parallel with the bearing plane

because Lyman teaches a plurality of bearing disks provide additional support to rotor.

15. Claims 3, 5, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols and Lyman, in further view of Shimamoto. Nichols and Lyman teach every aspect of the invention, except permanent magnets on opposite sides of the disk shaped or ring shaped rotor to creating unipolar magnetic bearing flux. Shimamoto teaches an axially magnetized permanent magnets 62/64 on the stator having control windings 88 and axially magnetized permanent magnets 70/72 on the rotor, where the permanent magnets 62/64 and 70/72 are positioned on

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opposite sides of a rotor ring 56 and stator disk 48. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Nichols and Lyman with the permanent magnet on opposite sides of the rotor disk/ring, as in Shimamoto to reduce the number of control windings need to adjust the magnetic bearings.

16. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols, Lyman, and Shimamoto, in further view of Machino. Nichols, Lyman, and Shimamoto teach every aspect of the invention, except the permanent magnets on the rotor and stator being both radially aligned and alternately aligned(one axially/one radially magnetized). Machino teaches the equivalence of permanent magnets being both axially aligned(figure 1a), both radially aligned(figure 1b) and alternately aligned(figure 3 showing the stator magnet being radially magnetized with the rotor magnet being axially aligned). It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Nichols, Lyman, and Shimamoto with the bearing magnets on the rotor and stator being both radially aligned or alternately aligned because Machino teaches the equivalence of the magnetization of the bearings being axially, radially or alternatively magnetized, and it would have an obvious selection of equivalents to choose between different magnetization for the bearing.

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17. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols in further view of German Patent 945,183('183). Nichols teaches every aspect of the invention except, a rotatable drive which can be magnetically coupled to the rotor. '183 teaches a magnetic couple drive with a radial magnetic couple 20 and an axial magnetic couple 11 which are equivalent to a motor driven 28 rotor. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Nichols the magnetic couple drive because '183 teaches the equivalence of a magnetic couple drive and a motor drive, such that it would have been an obvious design choice to select between known equivalents, and because a mechanical drive allows the drive source to be positioned away from the rotor.

Allowable Subject Matter

18. Claims 11-13 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Struder et al. teaches a motor flywheel with magnetic bearings and an ironless field winding.

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20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066. The examiner can be normally contacted on Monday through Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nestor Ramirez, can be reached at (703)308-1371. The facsimile number for the Group is (703)305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1782.



KIT

May 3, 1999


NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
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